Module title: Stochastic Models for Risk Analysis
Abbreviation: 12-RM-RA-102-m01

Module coordinator: Dean of the Faculty of Business Management and Economics
Module offered by: Faculty of Business Management and Economics

ECTS: 5
Method of grading: numerical grade
Only after succ. compl. of module(s): --

Duration: 1 semester
Module level: graduate
Other prerequisites: --

Contents:
Point and interval estimation for the value at risk
Point and interval estimation for the conditional value at risk
Prediction of value at risk in time series
Risk of forecasts in time series, in particular exponential smoothing under covariates
Conditional heteroscedasticity: ARCH, GARCH, EGARCH, DVEC, BEKK, DCC
Aggregated losses and their empirical analysis
Empirical analysis of statistical distributions
Nonparametric bounds for the value at risk
Empirical estimation of nonparametric bounds for value at risk and conditional value at risk
Market model: definition, derivation, parameters, empirical analysis
Capital asset pricing model: definition, risk parameters, estimation of portfolio parameters: variance, value at risk, conditional value at risk, shortfall
Optimum portfolios: concepts, theory, numerical analysis

Intended learning outcomes:
The student is able to estimate risk measures and the parameters of risk models from data. In particular, the student knows software packages and routines which enable empirical risk evaluation in a business context.

Courses:
(No information on SWS (weekly contact hours) and course language available)
Ü + V

Method of assessment:
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
written examination (approx. 60 minutes)

Allocation of places:
Number of places: 30. Should the number of applications exceed the number of available places, places will be allocated as follows: (1) Master's students of Wirtschaftsinformatik (Business Information Systems) will be given preferential consideration. (2) The remaining places will be allocated to students of other subjects. (3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated among applicants from this group according to the following quotas: Quota 1 (50% of places): total number of ECTS credits already achieved in the respective degree subject; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25% of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25% of places): allocation by lot. (4) Within the groups according to (1) and (2), applicants who already have successfully completed at least one module component of the respective module will be given preferential consideration. (5) Places on all courses of the module component with a restricted number of places will be allocated in the same procedure. (6) A waiting list will be maintained and places re-allocated as they become available.

Additional information:

Referred to in LPO I (examination regulations for teaching-degree programmes):

Module appears in:
Master's degree (1 major) Business Information Systems (2011)
Master's degree (1 major) Business Information Systems (2013)
Master's degree (1 major) Business Information Systems (2014)
Master's degree (1 major) Business Management (2013)
Master's degree (1 major) Business Management (2014)
Master's degree (1 major) Business Management (2011)